

Claims

I claim

1. For an over-the-road vehicle, a system that improves vehicle traction in wet road conditions comprising:

a traction improvement module that receives signals indicative of vehicle operating parameters and determines if the vehicle is hydroplaning based on the received signals and wherein the traction improvement module provides an output signal to activate at least one traction improvement measure; and

an ultra-sound wave generator that is activated by the traction improvement module as a traction improvement measure that directs ultrasonic waves in proximity to a vehicle tire.

2. The system of claim 1 wherein the ultra-sound generator supplies ultra-sound energy to a wave guide that directs ultra-sound waves in proximity to a vehicle tire.

3. The system of claim 1 comprising an accelerometer that provides signals indicative of vehicle acceleration to the traction improvement module.

4. The system of claim 1 comprising a brake module that provides signals to the traction improvement module that indicate that brakes on the vehicle have been activated.

5. The system of claim 4 wherein the brake module is associated with an ABS system.

6. The system of claim 1 comprising an axle speed sensor that provides signals indicative of vehicle wheel rotational speed to the traction improvement module.

7. The system of claim 1 comprising a traction enhancing agent dispenser that is activated by the traction improvement system to dispense a traction enhancing agent in proximity

to the vehicle tire.

8. The system of claim 7 wherein the traction enhancing agent is a deicing solution.

9. The system of claim 7 wherein the traction enhancing agent is rock salt.

10. The system of claim 7 wherein the traction enhancing agent is dispensed on the road surface immediately in front of the tire.

11. The system of claim 7 wherein the traction enhancing agent is dispensed onto the tire treads.

12. The system of claim 1 comprising a plurality of wave guides that direct ultra-sound waves in the proximity of each of the vehicle tires.

13. The system of claim 1 comprising a wave guide that directs ultra-sound waves onto the road surface immediately in front of the tire.

14. The system of claim 1 comprising a wave guide that directs ultra-sound waves onto the tire treads.

15. The system of claim 1 wherein the traction improvement module receives signals from an accelerometer that indicates vehicle acceleration, from an axle speed sensor that indicates vehicle wheel speed, and from a brake module that indicates brake actuation status and wherein the traction improvement module has stored in a memory a correlation between the accelerometer and axle speed sensor based on brake actuation status that represents normal vehicle operating conditions and wherein when the signals from the accelerometer and axle speed sensor diverge from the correlation the traction improvement module activates the ultra-sound generator.

16. A method for improving vehicle traction in wet road conditions comprising:
monitoring a plurality of vehicle operating parameters to obtain vehicle operating parameter values;
determining a baseline correlation between the vehicle operating parameter values during normal vehicle traction conditions;
during vehicle operation, monitoring the vehicle operating parameters and compiling an operating condition correlation;
comparing the operating condition correlation with the baseline correlation; and
activating an ultra-sound generator as a traction improvement measure that directs ultra-sound waves in proximity to a vehicle tire when the operating condition and baseline correlations deviate from one another by more than a threshold amount.

17. The method of claim 16 wherein the ultrasound generator supplies ultrasound energy to a wave guide.

18. The method of claim 16 wherein one of the plurality of vehicle operating parameters is measured by an accelerometer that provides signals indicative of vehicle acceleration.

19. The method of claim 16 wherein one of the plurality of vehicle operating parameters is measured by a brake module that provides signals that indicate that brakes on the vehicle have been activated.

20. The method of claim 16 wherein one of the plurality of vehicle operating parameters is measured by an axle speed sensor that provides signals indicative of vehicle wheel rotational speed.

21. The method of claim 16 comprising activating a traction enhancing agent dispenser that dispenses a traction enhancing agent in proximity to the vehicle tire.

22. The method of claim 16 wherein the wherein the one ore more vehicle operating parameter values are obtained from an accelerometer that indicate vehicle acceleration, from an axle speed sensor that indicates vehicle wheel speed, and from a brake module that indicates brake actuation status and wherein the baseline correlation correlates data from the accelerometer and axle speed sensor based on brake actuation status in normal vehicle operating conditions and wherein when the operating condition correlation diverges from the baseline correlation the traction improvement measures are activated.